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WAR FOOD ADMINISTRATION
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STAINING IMPORTED ALFALFA AND RED CLOVER SEED UNDER THE FEDERAL SEED ACT

The Federal Seed Act requires the staining of a proportion of any lot of seed containing 10 percent or more of the seeds of alfalfa or red clover before it will be admitted into the commerce of the United States.

The following rules and regulations with respect to the adaptability and staining of alfalfa and red clover seed offered for importation into the commerce of the United States became effective November 6, 1941:

"201.103 Unadapted alfalfa and red clover. Alfalfa seed and red clover seed of foreign origin other than the Dominion of Canada have been determined to be unadapted for general agricultural use in the United States.

"201-104 Staining of imported seed.

"(a) 10 percent of the seed in each container of the seed of alfalfa or red clover grown in any foreign country other than the countries of South America and the Dominion of Canada shall be stained red;

"(b) 10 percent of the seed in each container of the seed of alfalfa or red clover grown in any of the countries of South America shall be stained orange-red;

"(c) 1 percent of the seed in each container of seed of alfalfa or red clover grown in the Dominion of Canada shall be stained violet.

"(d) 10 percent of the seed in each container of the seed of alfalfa or red clover shall be stained red;

"(1) If the origin of alfalfa or red clover is unestablished

"(2) If the origin of alfalfa or red clover is such as to require different colors; and

"(3) If the alfalfa or red clover of foreign origin has been commingled with seed of the same kind grown in the United States."

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Attention is called to the provisions of section 306 of the act which states in part:

"It shall be unlawful for any person--

"(a) To sell or offer for sale--

"*****

"(4) any seed which has been stained to resemble seed stained in accordance with the provisions of this Act and the rules and regulations made and promulgated thereunder;

"(5) any seed stained under the provisions of this Act and the rules and regulations made and promulgated thereunder, when mixed with seed of the same kind produced in the United States;

"(6) any seed stained with different colors;

"(7) any seed stained under the provisions of this Act, the labeling of which states that such seed is adapted.

"(b) To change the proportion of seeds stained under the provisions of this Act and the rules and regulations made and promulgated thereunder, or to alter, modify, conceal, or remove in any manner or by any means the color of such stained seeds."

Staining in this country shall be done under supervision of an employee or authorized agent of the U. S. Department of Agriculture at the expense of the importer who shall also reimburse the Government for expenses incurred while performing such supervision.

Staining shall not be done until seed has met the germination and purity requirements of the Federal Seed Act.

Kinds and weights of dye and quantity of solution to color
completely 100 pounds of seed

Seed Color	Color Index No.	Brand name or color	Manufacturer ¹	Amount of dye			Water
				Cunces	Grams	Pints	
Violet...	680	Methyl Violet NE	E. I. du Pont de Nemours & Co., Inc.				
		Methyl Violet 2B Conc. Crystals	National Aniline & Chemical Co., Inc.	4/5	23	3-1/5	
		Calcozine Violet Ex. Conc.	Calco Chemical Co., Inc.				
		Methyl Violet DXX	General Dyestuff Corporation				
Red.....	749	Rhodamine B Extra	E. I. du Pont de Nemours & Co., Inc.				
		Rhodamine B Extra	National Aniline & Chemical Co., Inc.	5/8	17	2-1/4	
		Calcozine Red BX	Calco Chemical Co., Inc.				
		Rhodamine B Extra	General Dyestuff Corporation				
Orange		Orange G	E. I. du Pont de Nemours & Co., Inc.				
		Wool Orange 2G Crystals	National Aniline & Chemical Co., Inc.				
		Calcocid Fast Light Orange 2G	Calco Chemical Co., Inc.				
		Fast Light Orange GA Conc.	General Dyestuff Corporation				
Orange-Red...		Mixture Orange.....1/2	13	3-1/4		
			Red.....1/4	8			

¹While it is impracticable to provide a complete list of dealers, this partial list is furnished with the understanding that no discrimination is intended and no guaranty of reliability implied.

Dissolving the Dye

In all cases the dye must be completely dissolved before the dye solution is used. This can best be done by using warm water and making a thin paste, using a small paddle or a flexible knife blade (kitchen knife). The remainder of the liquid is then stirred in and the solution poured from one container to another until completely dissolved. If the dye separates while standing, it can be brought back into solution by warming gently. When seed is discolored, 10 percent of additional dye solution should be used.

All solutions should be made immediately before using and never allowed to stand overnight.

When making the orange-red solution each color should be prepared separately and then mixed before applying to seed.

Complete Staining with Water-Soluble Dye.

It is practicable to stain seed completely, using either a concrete mixer or a tarpaulin or waterproof sheet. Staining cannot be satisfactorily done by sprinkling the dye solution over the seed in a pile on the floor and turning with shovels.

Concrete-Mixer Method

The seed is placed in an ordinary concrete mixer; the dye solution is added; and the mixer is turned until the color is evenly distributed over the seed. The seed is then resacked and allowed to dry. Good results cannot be expected unless both the quantity of dye in the solution and the quantity of solution are used in approximately the proportions recommended.

Waterproof-Sheet Method

In using the waterproof-sheet method the same results may be obtained as with the concrete-mixer method. Place the seed on a waterproof-sheet on the floor (sheet approximately 10 x 10 feet for quantities up to 220 pounds of seed); apply the dye solution to the seed with a sprinkling can; roll the seed on the sheet. It is suggested that a man be used at each corner of the sheet. The rolling should be done as quickly as possible so that the dye solution becomes thoroughly distributed over all the seed. The seed should be rolled across one width of the sheet several times then several times across the other width. The ends of the pile of seed should be thrown back in the middle to facilitate the complete staining as quickly as possible. The seed is then resacked and allowed to dry.

Blending

The most satisfactory method of thoroughly blending the stained with the unstained seed is by dumping both into a hopper to be elevated to a bin or cleaning machine as the dealer desires.

It is important that the stained seed be blended with the unstained seed as uniformly as possible. To do this it is essential that the correct percentage of stained seed be added as each bag of seed is emptied.

Instructions to Officials Supervising the Staining of Imported Seed

1. Check the identification marks and the number of bags with the information shown on the notification authorizing staining.
2. Determine the amount of seed to be completely stained. For example if a shipment of 100 bags is to be stained 1 percent violet, 1 bag should be completely stained violet in order that 1 pound of stained seed can be added to each 99 pounds of unstained seed.
3. The bags of seed should not be opened until approval has been given by the supervisor. They should be opened under circumstances where they may remain under observation during the process of blending.

4. The dye should be prepared in accordance with the instructions given above as nearly as is practicable. Certain lots of seed need application of additional dye to obtain the proper color. The stained seed must meet the approval of the supervisor before blending is begun. The stained seed should be allowed to dry before bulking. In extremely cold weather, care **must** be taken to prevent the dye solution from freezing when applied to the seed.
5. Before each bag is emptied make sure it belongs to the lot approved for staining. The amount of stained seed to be added with each unstained bay can be determined by first weighing the required portion and thereafter approximating the amount of seed to be added as each bag is emptied.
6. The emptied bags should remain under observation until they have been counted. Provision must be made that this will be done to the satisfaction of the Supervisor. Failure to account for all the bags ascribed to the lot will withhold release of the seed.
7. Obtain a **small** sample of the completely stained seed as well as a sample of the seed after blending. Identify samples with F. S. A. number, port of entry entry number, amount stained and distinguishing marks; forward samples with a report to the laboratory that issued the rejection.
8. Staining reports should be made out in triplicate on the report blanks provided for this purpose. One copy should be sent to the seed laboratory that rejected the shipment, one to the Beltsville office of the Grain Products Branch.

